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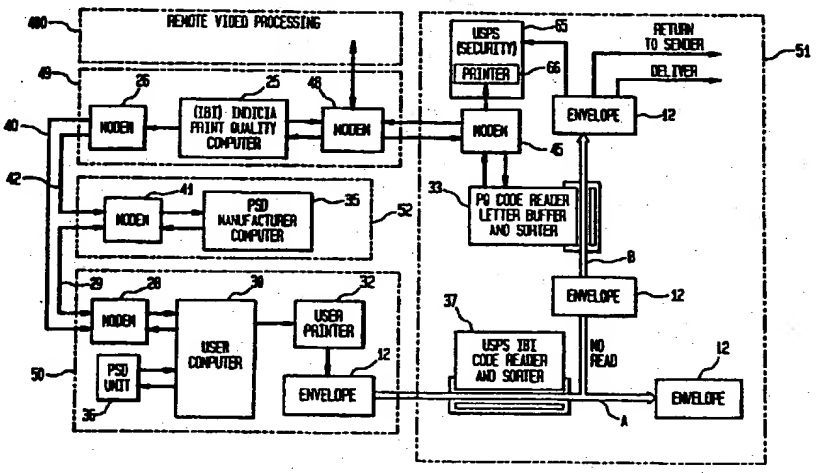
(54) A system for the enhancement of information based indicia and postage security devices

(57) A system (50) that supplies permanent and human and machine readable evidence that a approved printer (32) was used to print the indicium affixed to a mail piece (12). The system will first capture the postal customer's or mailers printer type and configuration setting information, paper, ink, or toner combination and then use the foregoing information to enable printing of the Information - Based Indicium, if the active printer (32) going to print the indicium is found on a stored (local or remote) "Information - Based Indicia Approved Printer's List". Then the system will add this same printer information to the USPS defined Information - Based Indicium print field format so as to provide evidence that an approved printer was used. The foregoing printer information may be printed in a coded form on the Information - Based Indicium to automate the sortation of indicia that cannot be read.

FIG. 3



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configuration setting information, paper, ink, or toner combination and then use the foregoing information to enable printing of the Information - Based Indicium if the active printer going to print the indicium is found on a stored (local or remote) "Information - Based Indicia Approved Printer's List". Then the system will add this same printer information to the USPS defined Information - Based Indicia print field format so as to provide evidence that an approved printer or unapproved printer or proper supplies were used. The foregoing printer information may be printed in a coded form on the Information - Based Indicium to automate the sortation of indicia that cannot be read. Thus, this invention will improve the processing of Information - Based Indicia mail by reducing and eventually virtually eliminating the use of printers, printer settings, paper envelopes, inks and toners that can not be read by Information - Based Indicia scanners. Hence, this invention will improve the processing of mail.

The foregoing is accomplished by collecting information about the indicia printer, the indicia printer settings, the paper on which the indicia is going to be printed and the ink or toner that is going to be used to print the indicia, using the program contained in the user computer. Then the program contained in the user computer decides if the printer, paper, ink, or toner combination is approved by the USPS to allow printing. At this point the program contained in the user computer notifies the user of the status of the selected printer, paper and ink, or toner. Now, the program contained in the Postal Security Device computer adds the coded representation of the selected printer, paper and ink or toner to the indicia to automate the post processing of mail pieces that have indicia that can not be read.

Fig. 1 is a drawing of a prior art mail piece containing an Information - Based Indicium;

Fig. 2 is a drawing of an Information - Based Indicium containing a code that represents the printer, printer settings, ink, or toner and paper in which the indicium was printed;

Fig. 3 is a block drawing of the system used to print information about the printer, printer settings, ink, or toner and paper in which the indicium was printed and the system used to read the above information;

Fig. 4 is a drawing of a flow chart of the print quality manager program contained in user computer 30;

Fig. 5 is a drawing of a flow chart of the program that controls PSD 36 of Fig. 3, which is loaded into computer 30;

Fig. 6 is a drawing of a flow chart of the interaction of the print quality manager program of Fig. 4 with the program of Fig. 5 that controls PSD 36;

Fig. 7 is a drawing of a flow chart of the real time video image processor 300 and 400 process "no-read IBI indicia images so as to extract the print characteristics and to extract the "damaged" image if there is one;

Fig. 8 is a drawing of a flow chart that shows how the print quality processor would update the printer, settings and supplies database; and

Fig. 9 is a drawing of a flow chart that shows how new "Damage Templates" are created and then added to the print quality data base.

Referring now to the drawings in detail, and more particularly to Fig. 1, the reference character 11 represents a USPS Information - Based Indicium that was printed on mail piece 12 by a printer. The postal indicium 11 contains a dollar amount 13, the date 14 that the postal indicium was affixed to the mail piece, the place the mail piece was mailed from 15, the postal meter serial number 16, a FIM code 17 and a 2D encrypted bar code 18. Mail piece 12 also contains an indication 19 of the class of mail piece 12. Mail piece 12 is going to be sent to the person and place indicated in address field 20.

Fig. 2 is a drawing of an Information - Based Indicium containing a code that represents the printer, printer settings, ink, or toner and paper in which the indicium was printed. The postal indicium 20 contains a dollar amount 13, the date 14 that the postal indicium was affixed to the mail piece, the place the mail piece was mailed from 15, the postal meter serial number 16, a FIM code 17 and a 2D encrypted bar code 18. Mail piece 12 is going to be sent to the person and place indicated in address field 20.

Postal indicia 21 has a human readable or machine readable code 22 that represents the postal customer's or mailer's printer type and configuration setting information, paper, ink, or toner combination. Code 22 may be of the form A, B, C, D, E, F, G ,H ,I ,J ,K, L, M, N, O, P and Q,. where, the positions held by letters A and B may be used to represent the manufacturer of the printer that printed indicia 21 and the positions held by letters C, D, and E may be used to represent the model of the printer that printed indicium 21. The position held by letter E may be used to represent the print density of the printer that printed indicium 21 and the position held by letter F may be used to represent the print dither type of the printer that printed indicium 21. The position held by letters G and H may be used to represent the envelope size of the envelope on which indicium 21 was affixed and the position held by letters I and J may be used to represent the paper type in which indicium 21 was affixed. The position held by letters K, L and M may be used to represent the type of ink that was used to print indicium 21 and the position held by letters N, O and P may be used to represent the toner type in which indicium 21 was affixed. Letter Q may be used as a control or for error correction.

It will be obvious to one skilled in the art that code 22 may have additional positions in order to represent additional information about the printer that printed indicium 21. It will also be obvious to one skilled in the art that code 22 may be printed in decimal, base 32,

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information derived from information contained in computer 25.

Fig. 4 is a drawing of a flow chart of the print quality manager program contained in user computer 30. The user turns computer 30 on and in block 100 the operating system of computer 30 loads the print quality manager program into the memory of computer 30. Then the program goes to block 101 where computer 30 determines whether or not a compatible envelope program is installed in the memory of computer 30. A compatible envelope program may be the Dazzle Envelope Manager Software program manufactured by Dazzle of 247 High Street, Palo Alto, California 94301-1041. If, a compatible envelope program is not installed in the memory of computer 30, the program would proceed to block 102 and end. If, a compatible envelope program was installed in the memory of computer 30 the program would advance to block 103 and the program would read its operating system initiating files and determine what is the identification of active user printer 32 (Fig. 3). Then the program would proceed to decision block 104 and determine whether or not printer 32 is listed in the data base as a IBI approved printer. If, the answer to the aforementioned question is no, the program would go to decision block 105.

In decision block 105 the program would determine whether or not active printer 32 is listed in the data base as a printer that is not an IBI approved printer. If, it was determine that printer 32 was listed as a printer that was not IBI approved, then the program would go to block 106 and set a warning message that printer 32 is not an IBI approved printer. Then the program would store the above warning message in print quality status message buffer 108. If, decision block 105 determined that the answer was no, the program would advance to block 107. Block 107 would compose a warning message indicating that it does not know if printer 32 is an IBI approved printer. The aforementioned warning message composed in block 107 will be stored in block 108 status message buffer. At this point the program would proceed to block 109. Block 109 would be a buffer that would request an update on the status of printer 32. If, decision block 104 had a positive answer, this fact would be stored in print quality status message buffer 108.

At this point the program would advance to block 110 where the program would read the operating systems initiating files to determine what is the current dither setting, graphic setting, resolution enhancement technology setting (if valid), paper identification, toner identification and/or ink identification of printer 32. Then the program would go to block 112 and look up each print parameter read in block 111 in the print quality data base. The program would also determine in block 112 whether the current settings of printer 32 are within the IBI approved ranges, out of the current IBI ranges or not found. Now, the program would go to decision block 114, where the program would sort and transfer the information received from block 111 to the proper buffers. If, the information was not found, this fact would be stored in block 109 request update buffer. If, the settings were outside the IBI approved ranges the program would go to block 108 print quality message status buffer where this fact would be stored. If, the settings were within the IBI approved ranges the program would go to decision block 120. Decision block 120 would determine whether or not a compatible envelope program is being loaded. If, a compatible envelope program is not being loaded the program would go back to the input of block 120 and wait until a compatible envelope program is loaded. If, a compatible envelope program is being loaded, then the program would advance to block 124 to determine whether or not the user of computer 30 selected the print command. If, block 124 determines that the print command was not selected the program would go to decision block 125. Decision block 125 would determine whether or not the envelope program is going to be terminated by the user of computer 30. If, the envelope program is not going to be terminated then the program will go back to block 124. If, the envelope program is going to be terminated then the program will go to block 102 and the program will end. If block 124 determines that the print command was selected the program would go to block 126 to read the contents of buffer 108 and buffer 109. Block 126 would use the aforementioned information that was read and compose a warning message that will appear on the display of computer 30.

At this juncture the program would advance to decision block 128 where the program would wait for the users response to the warnings. If, decision block 128 determines that the user of computer 30 wants to follow the warning message and / or messages the program would advance to block 129 where a request to update the print quality manger program may be made via modem 28 (Fig. 3) or diskette (not shown). If, decision block 128 determines that the user of computer 30 does not want to follow the warning message and / or messages the program would advance to block 130 where the program would read the information contained in buffer 108 and buffer 109 and format a print quality message. Then the program will go to block 131 where the aforementioned print quality message will be sent to the data input of PSD 36 (Fig. 3). Now the program will go to block 132 where PSD will acknowledge receipt of the aforementioned message. Then the program will go to block 133 where the program will save a date stamped record of the print quality message status in the print quality archives file. At this point the program would proceed to block 134 and then go back to block 124.

Fig. 5 is a drawing of a flow chart of the program that controls PSD 32 of Fig. 3, which is loaded into computer 30. The program begins in decision block 200, where the program determines whether or not the user of computer 30 (Fig. 3) wants to compose the next IBI indicia. If, block 200 determines that the user does not want to compose the next IBI indicia, then the program

determine whether or not a record is in image buffer 451. If, there is nothing in buffer 451 the program would go to 453 batch transfer, new templates, If, there is something in buffer 451 the program would go to decision block 461 to determine whether or not the damage is from a mailer process. If, the damage was from a mailer process then the program would proceed to block 454 buffer new template images. If, decision block 461 had a negative answer from the operator then the program would proceed to decision block 462 to determine whether or not this damage is from a postal process. If, the damage was from a postal process then the program would proceed to block 454 buffer new template images. Then the program would proceed to block 463. If, block 463 determined that the damage was not suspicious the program would proceed to decision block 452. If the damage was suspicious then the program would proceed to block 313 to add the record to the United States Postal Service suspicious damage report. If, decision block 463 determined that the image was not suspicious then the program would proceed to block 451 for the image buffer to route the image to an operator. Indicia print quality database 307 contains block 330 printing standards data, block 310 which lists additional record to 100% approved printed usage report, block 311 which adds the record to a partially approved printing usage report, block 312 which adds a record to the non approved printing usage report and block 313 which adds the record to the United States Postal Service suspicious damage report.

The above specification describes a new and improved system for printing information in an indicium or in the vicinity of the indicium that indicates the printer, printer settings, ink, or toner and paper in which the indicium was printed. It is realised that the above description may indicate to those skilled in the art additional ways in which the principles of this invention may be used without departing from the spirit. It is, therefore, intended that this invention be limited only by the scope of the appended claims.

Claims

1. An improved metering system that affixes an indicium to a mail piece, the improvement comprising: means for recording information relative to characteristics of a printing mechanism that recorded the information based indicium on the mail piece, wherein the recorded information is recorded in the indicium or in the vicinity of the indicium.

2. The system claimed in claim 1, wherein the recorded information about the printing mechanism is the manufacturer of the printing mechanism used to print the indicium.

3. The system claimed in claim 1, wherein the recorded information about the printing mechanism is the manufacturer of the printing mechanism and model number of the printing mechanism used to print the indicium.

4. The system claimed in claim 1, wherein the recorded information about the printing mechanism is the manufacturer of the printing mechanism, the model number of the printing mechanism and printing mechanism settings used to print the indicium.

5. The system claimed in any one of claims 1 to 4, wherein the recorded information about the printing mechanism is recorded in a human readable code.

6. The system claimed in any one of claims 1 to 5, wherein the recorded information about the printing mechanism is recorded in a machine readable code.

7. The system claimed in any one of claims 1 to 7, wherein the recorded information is printed in a human readable or machine readable code.

8. The system claimed in any one of the preceding claims, further including recording information in the indicium or in the vicinity of the indicium that indicates the type of paper on which the indicium was printed.

9. The system claimed in any preceding claim, wherein the recorded information about the paper is printed in a human readable or machine readable code.

10. The system claimed in any preceding claim, further including recording information in the indicium or in the vicinity of the indicium that indicates the type of ink, that was used to print the indicium.

11. The system claimed in claim 10, wherein the recorded information about the ink is printed in a human readable or machine readable code.

12. The system claimed in claim 10 or 11, further including recording information in the indicia or in the vicinity of the indicia that indicates the type of toner that was used to print the indicia.

13. The system claimed in any preceding claim, further including means for reading the recording information about the printing mechanism that recorded the indicia, and including means coupled to said reading means for determining whether or not the indicia read by said scanner was approved by the Postal Service.

14. The system claimed in any one of the preceding claim, further including:

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FIG. 1

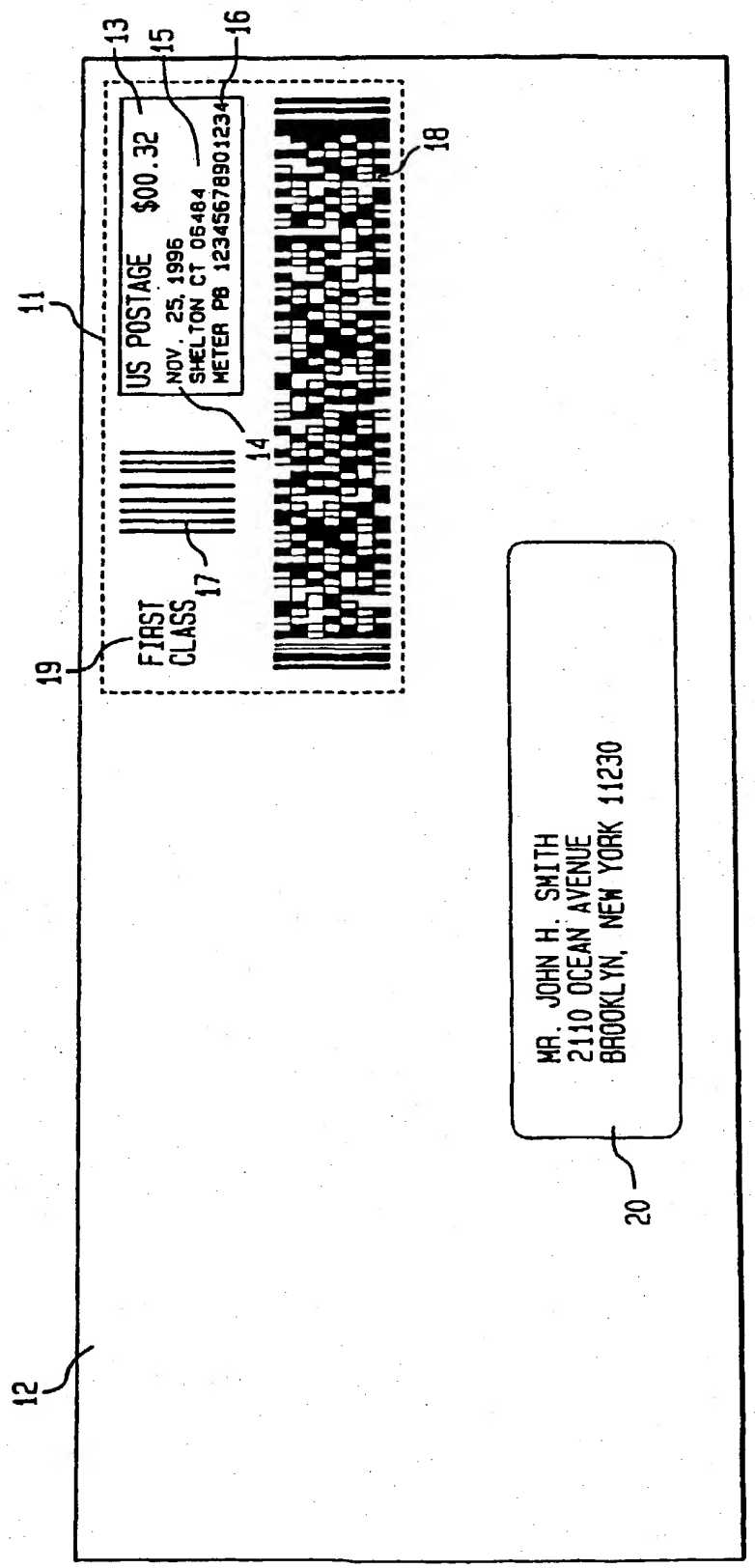
US POSTAGE $00.32
NOV. 25, 1996
SHELTON CT 06484
METER PB 12345678901234
FIRST CLASS
MR. JOHN H. SMITH
2110 OCEAN AVENUE
BROOKLYN, NEW YORK 11230
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FIG. 3

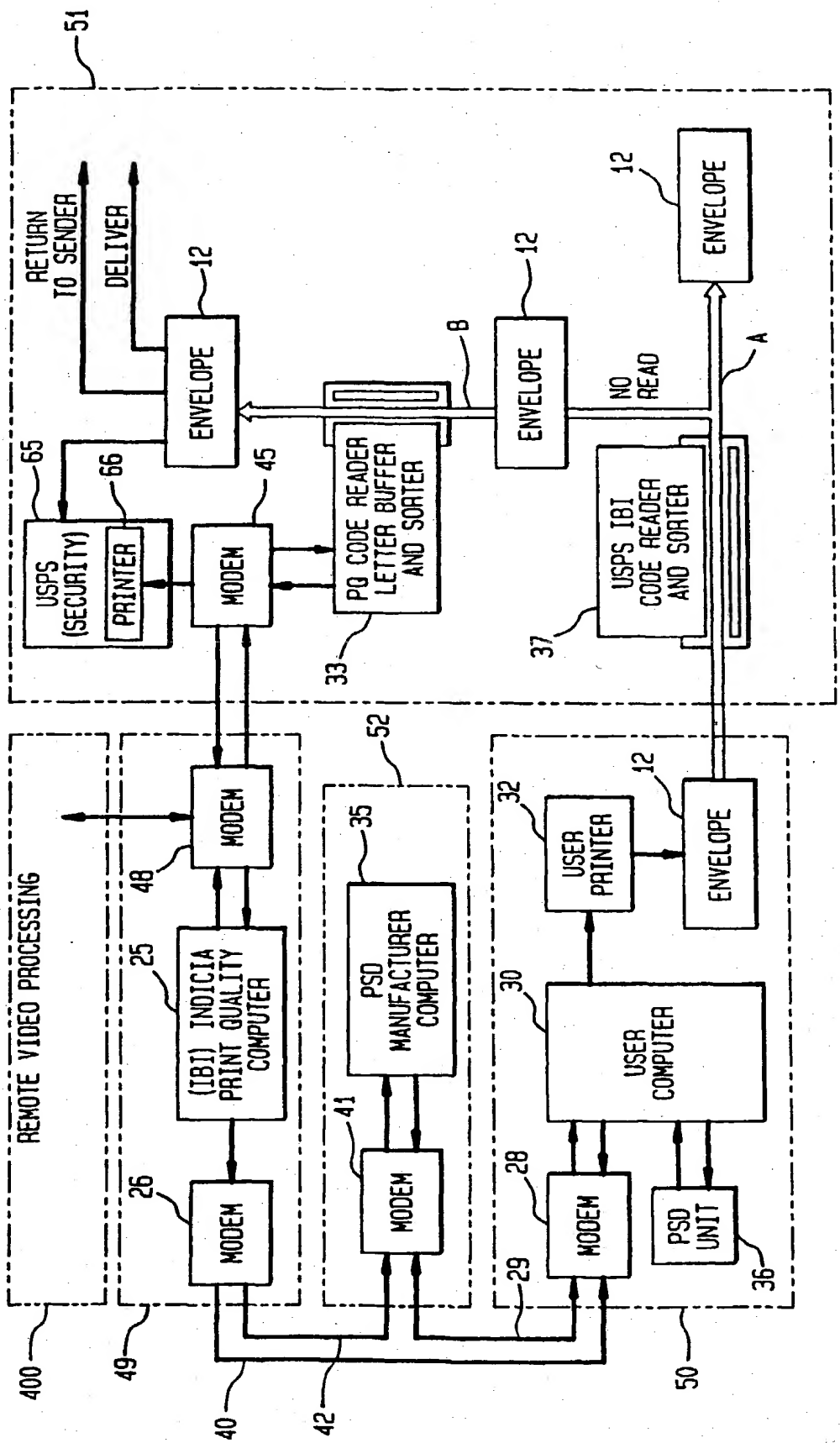

51
RETURN TO SENDER
DELIVER
12
ENVELOPE
65
66
USPS (SECURITY)
PRINTER
MODEM
45
PQ CODE READER LETTER BUFFER AND SORTER
33
B
12
ENVELOPE
NO READ
A
12
ENVELOPE
USPS IBI CODE READER AND SORTER
37
REMOTE VIDEO PROCESSING
MODEM
48
25
(IBI) INDICIA PRINT QUALITY COMPUTER
26
MODEM
52
35
PSD MANUFACTURER COMPUTER
41
MODEM
32
USER PRINTER
12
ENVELOPE
30
USER COMPUTER
28
MODEM
29
PSD UNIT
36
400
49
40
42
50

FIG. 5

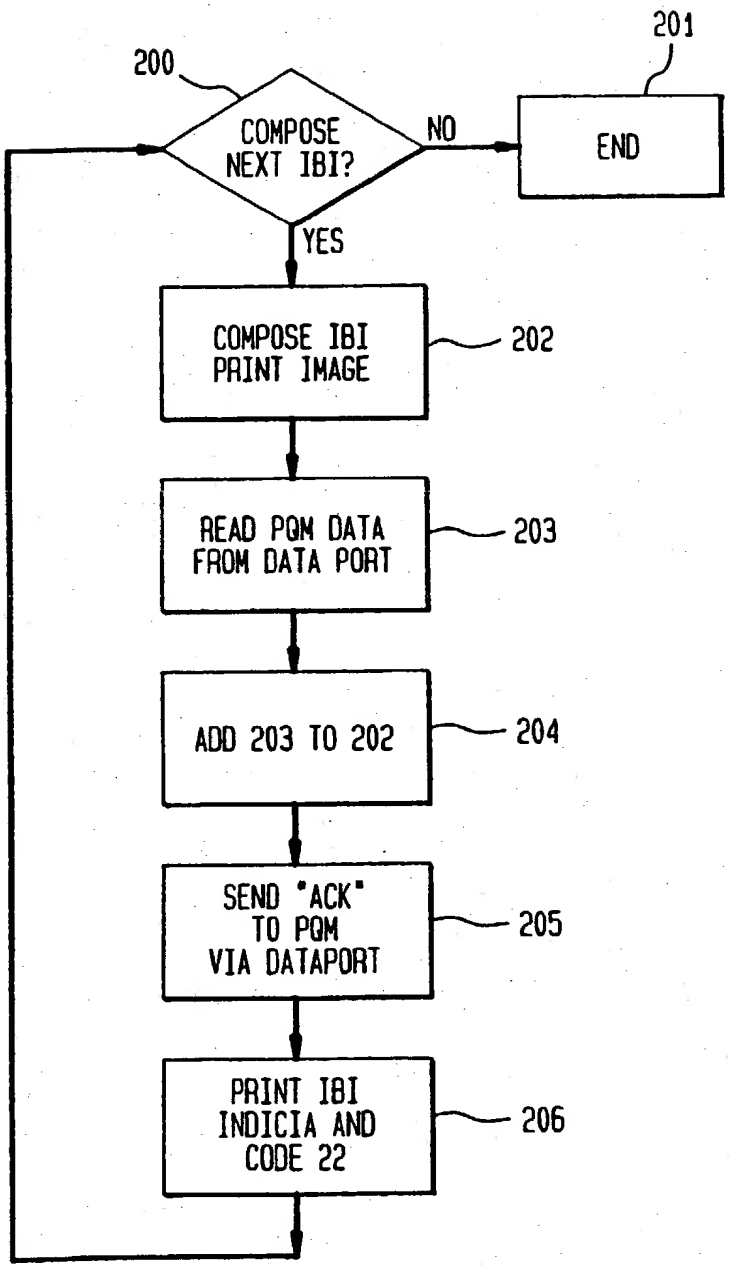
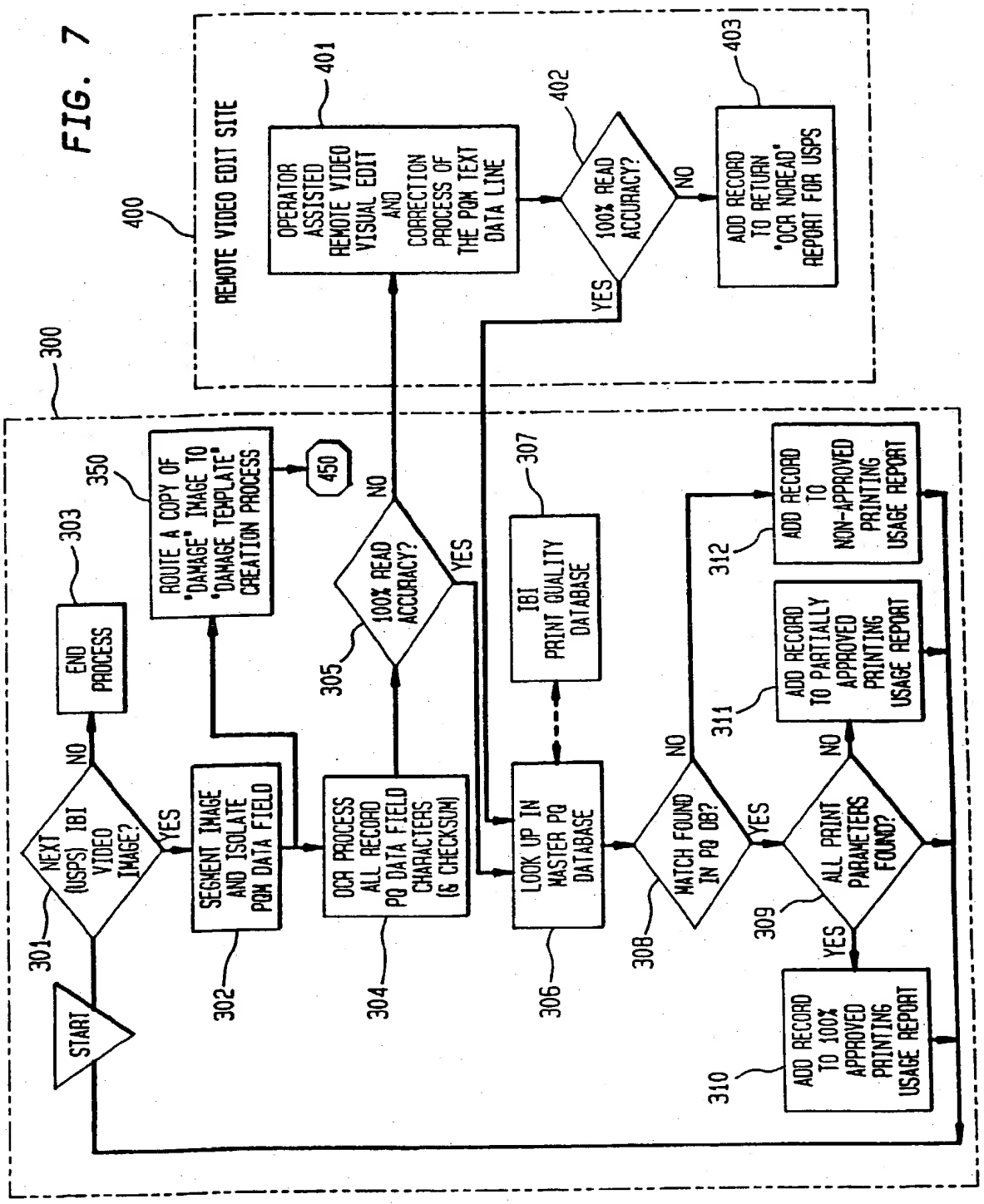

200
COMPOSE NEXT IBI?
NO
201
END
YES
COMPOSE IBI PRINT IMAGE
202
READ PQM DATA FROM DATA PORT
203
ADD 203 TO 202
204
SEND "ACK" TO PQM VIA DATAPORT
205
PRINT IBI INDICIA AND CODE 22
206

FIG. 7



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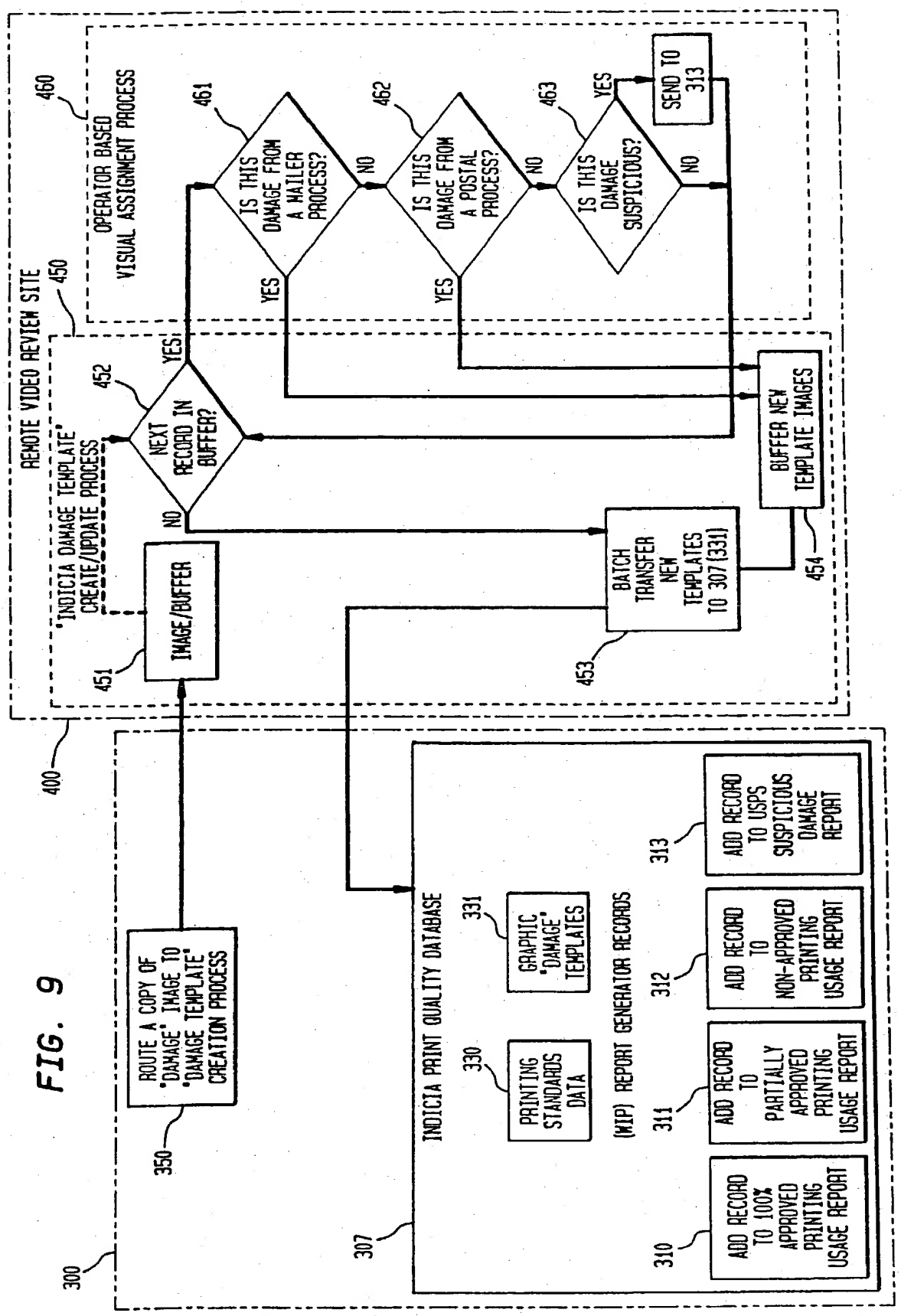

FIG. 9

SDOCID: <EP 0845759A2 I >

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Patent- und Rechtsanwälte,
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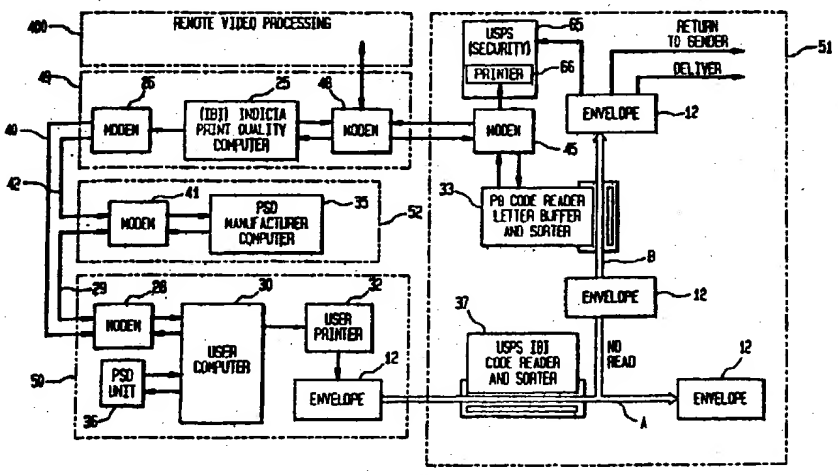
FIG. 3



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31-05-2000

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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- 2. FEB. 2004
Kutzenberger & Wolff
Frist

Datum/Date
03.02.04

Zeichen/Ref./Réf.	Anmeldung Nr./Application No./Demande n°./Patent Nr./Patent No./Brevet n°.
AS0007EP	00982575.3-2221-US0033615

Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire
Ascom Hasler Mailing Systems, Inc.

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

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☐ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

770P089667-EP (PCT)

REFUND OF THE SEARCH FEE

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European Patent Office

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 00 98 2575

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 0 845 759 A (PITNEY BOWES) 3 June 1998 (1998-06-03) * figure 3 * * column 5, line 2-18 * * column 6, line 51-57 * -----	1-23	G06F17/60 G07B17/00

TECHNICAL FIELDS SEARCHED (Int.Cl.7)
G07B B07C G06K

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
MUNICH	26 January 2004	Gabriel, C

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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L : document cited for other reasons

& : member of the same patent family, corresponding document

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